REMARKS

Claims 8, 10, 11, 15-24, 26, 30-35, 42, 43, 45-49, 51-56, 58-60, 64-72, 74-91 and 93-99 are now pending in the above-referenced patent application. Applicants respectfully request further consideration of these claims, in view of the amendments set forth above and the following remarks.

In this Amendment J, claim 77 is amended to correct an obvious typographical error

Rejections Based on Pohm et al.

The Office action rejects claims 8, 10, 11, 15-19, 23, 24, 26, 30-33, 42, 43, 45-49, 51-55, 59, 60, 64-72, 74-78, 80, 82, 83, 88-91, 93, 96 and 99 as being anticipated by Pohm et al. ("High-Density Very Efficient Magnetic Film Memory Arrays", IEEE Transactions on Magnetics, 1968, Mag-5, 3, 408-412), as evidenced by Maxwell et al. ("Processing Guidelines for S.M.P.S. Multilayer Ceramic Capacitors", 2005, 1-6) and Kitada et al. ("Reaction Between Permalloy and Several Thin Metal Films", Thin Solid Films, 1984, 122, 173-182).

The Office action also rejects claims 8, 10, 11, 15-24, 26, 30-35, 42, 43, 45-49, 51-56, 58- 60, 64-72, 74-91, 93, 95, 96, 98 and 99 as being obvious under 35 U.S.C. § 103(a) over Pohm et al. (Pohm et al. "High-Density Very Efficient Magnetic Film Memory Arrays", IEEE Transactions on Magnetics, 1968, Mag-5, 3, 408-412) in view of Howard et al. (Howard, J.K. et al. "Intermetallic Compounds of Al And Transitions Metals: Effect of Electromigration in 1-2-μm-wide lines", J. Appl. Phys. 49(7), 1987, 4083-4093) and Makino et al. (Makino, K. et al. "A Highly Reliable Plated Wire: Study on Corrosion of Magnetic Films", IEEE Transactions on Magnetics, 1973, Mag-9, 3, 500-503), and Lee (Lee, F.S., "A High-Density Coupled-Magnetic-Film Memory Array", IEEE Transactions on Magnetics, 1971, Mag-7, 4, 808-872) and Brown et al. (Brown et al. "High Density Devices Using Permalloy Propagation of Wall-Coded Bubbles", IEEE Transactions on Magnetics, 1979, Mag-15, 6, 1501-1506) and Jubb et al. (Jubb et al., "Coercivity, Structure, and Stoichiometry of Permalloy/Alumina Multilayers", J.Appl. Phys., 1985, 57, 1, 4192-4194) as evidenced by Maxwell et al. (Maxwell, J. et al. "Processing Guidelines for S.M.P.S. Multilayer Ceramic Capacitors", 2005, 1-6) and Kitada et al. (Kitada, M.

PAGE 23/27 * RCVD AT 7/12/2006 12:54:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-5/12 * DNIS:2738300 * CSID:+1 408 773 4029 * DURATION (mm-ss):07-04

et al. "Reaction Between Permalloy and Several Thin Metal Films", Thin Solid Films, 1984, 122, 173-182).[1]

Applicants respectfully traverse this basis for these rejections in view of the following remarks.

Each of the independent claims requires forming ten or more different inorganic materials on a substrate by a method that includes (i) delivering a first component of the material to the substrate to form a first solid layer comprising the first component on the substrate, (ii) delivering a second component of the material to the substrate to form a second solid layer comprising the second component on the first layer, and (ii) varying the composition, concentration, stoichiometry or thickness of the delivered (first or second) component between respective regions.

Significantly, Pohm does not disclose or suggest preparing arrays of diverse materials using a protocol that includes varying the composition, concentration, stoichiometry or thickness of the *delivered* (*e.g.*, first or second) *component, as compared between respective material-containing regions* – a step that is required by each of the claims defining the present invention. Also significantly, Pohm does not deposit components of materials into different regions of a substrate to form different materials, as required by the claims (e.g., claim 42 requires that "each of at least ten of the materials being different from each other").

For anticipation, "the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. ... Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not

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[1] The Office action sets forth numerous conclusive statements regarding what Pohm teaches with respect to various claimed aspects of the invention, and /or regarding what Applicants claims mean. Applicants expressly disagree with many of the statements asserted in the Office action in this regard. Some particular points of disagreement are discussed herein, to the extent necessary to distinguish the invention defined by the presently pending claims. Applicants have not, however, specifically addressed other particular points of disagreement, since such points are moot in view of the arguments set forth by Applicants. Applicants are not conceding the factual accuracy of any statements set forth in the Office action, except to the extent expressly admitted by Applicants. Applicants do not admit or acquiesce to statements in the Office action upon which Applicants have not commented.

PAGE 24/27 * RCVD AT 7/12/2006 12:54:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-5/12 * DNIS:2738300 * CSID:+1 408 773 4029 * DURATION (mm-ss):07-04

there." Motorola, Inc. v. Interdigital Technology Corp., 43 USPQ2d 1481, 1490 (Fed.Cir. 1997) (emphasis added).

For obviousness, the law is similarly clear that "to establish a *prima facie* case of obviousness, all the claim limitations must be taught or suggested by the prior art." See MPEP Sec. 2143.03; In re Royka, 180 USPQ 580 (CCPA 1974). As discussed herein, however, technically and commercially significant features of the presently-claimed inventions are not taught or suggested by the Pohm reference.

In detail, Pohm does not meet either standard for anticipation or obviousness because Table I cannot be read in the manner that has been speculated about in the Office action. For example, Table I could be referring to the thickness of the layers deposited in a single cell – this interpretation is supported by Pohm, which states, "The cross section of the film structure and the deposition conditions are summarized in Table I." (p. 409) Use of the word "the film" commonly means that there would be only one film that was deposited or analyzed. Pohm also states that only "two different storage cell structures were made", with each one being made one at a time on different wafers (p. 409 1st full paragraph, first sentence). Thus, Pohm does not disclose that there is more than one film on a wafer, and does not disclose with *sufficient clarity* that the thicknesses of the layers in the reference varied from cell to cell on a single wafer.

The Office action engages in speculation about what Table 1 of Pohm might be saying (see page 4 of the Office action). As the action states the array "could contain" a variety of compositions, which by clear admission means that the array in Pohm could also not contain those variety of compositions. Such speculation regarding the reference's disclosure is insufficient to meet the anticipation or obviousness standard.

Another possible reading of Pohm is that Table I discloses ranges of the layers that are deposited because, at best, those ranges are at the limit of the testing ability of the equipment available in 1969: the ranges show the approximate thickness of the deposited layers (in angstroms) across the entire substrate. As Pohm states, "A quartz-crystal thickness monitor was installed to control the evaporation rates and to determine the film thickness" (p. 408). Also, there appears to be an error in Table I in the recitation of "5000-1500 Cu", which is backwards. Given the apparent error, as well as use of the phrase "the film", the reasonable conclusion is that multiple component *films* where varying the composition, concentration, stoichiometry or

PAGE 25/27 * RCVD AT 7/12/2006 12:54:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-5/12 * DNIS:2738300 * CSID:+1 408 773 4029 * DURATION (mm-ss):07-04

thickness of the *delivered* (*e.g.*, first or second) *component, as compared between respective material-containing regions* – is not disclosed or suggested by Pohm.

Applicants understand Table I in Pohm to disclose that only the same components and the same materials are made in each cell and that the ranges in Table I (e.g., 100-300 Cr) are not compositional ranges for different regions of the wafer. Because of this, the materials in each region of Pohm are the same – not different. The only difference between the regions of Pohm are the physical size of the regions, which is a result of the different spacings in the word and digit line directions to create "different sized storage cells" (see bottom of second column of page 408 in the sentence that carries over to page 409). With reference to claim 8, there is no difference between the cells in terms of composition, stiochiometry or thickness. And with reference to claim 68, there is also no difference between the cells in terms of concentration (e.g., there is no gradient).

In other words, Pohm creates an array of one film of different size cells, and not an array of different materials. To support this, consider that it is not at all clear that the method and equipment of Pohm could have prepared an array with differing compositions in each cell (i.e., Pohm is not enabling to create the array of the present invention). There is no mask to control deposition of the layers into certain regions; instead an evaporation mask provided different cells of different size, but did not prevent a layer from being deposited into one or more cells. And the shutter of Pohm was for limiting contamination from different sources, not for controlling deposition into certain regions. Thus, there is no disclosure of a capability in Pohm to deposit different amounts of a component into different cells.

Hence, the Pohm reference would not have been understood by a skilled artisan as disclosing the inventions defined by the presently-pending claims, which require delivery of a first component to form a first layer in each of the ten or more predefined regions of the substrate, with subsequent delivery of a second component to form a second layer over the first layer in each of the ten or more regions, while varying the composition, concentration, stoiciometry and/or thickness of the delivered components between respective regions for the first and/or the second components. As such, Pohm does not anticipate or suggest the presently-pending claims.

PAGE 26/27 * RCVD AT 7/12/2006 12:54:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-5/12 * DNIS:2738300 * CSID:+1 408 773 4029 * DURATION (mm-ss):07-04

Also, there is also no reaction and Pohm tries to stop any reaction by lowering the deposition temperature, which means that Pohm actually teaches away from performing a reaction. This eliminates the motivation to combine the references suggested by the office action. As such, to the extent the Office action relies on inherency to establish that Pohm teaches a reaction between layers, such reliance is misplaced. The law is clear that inherency may not be established by possibilities or probabilities; rather, the required feature must necessarily follow from the teaching of the reference. *See* MPEP 2112; *Continental Can Company USA vs. Monsanto Company*, 20 USPQ2d 1746 (Fed. Cir. 1991). Moreover, the secondary references do not support the inherency conclusion. For example, Kitada uses an annealing at a temperature of at least 200C, which is above the 150C process condition of Pohm Table I; Maxwell seems to be completely irrelevant. Thus, reliance on inherency is misplaced as this is not the "reaction" of claim 49, which results in a different material, as compared to the layers of Pohm.

The Applicant respectfully requests that these rejections be withdrawn.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

Applicants believe that no further fees are required in connection with the instant amendment. If necessary, however, the Examiner is hereby authorized to charge any fees required in connection with this application to Deposit Account No. 50-0496.

Respectfully submitted,

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PAGE 27/27 * RCVD AT 7/12/2006 12:54:19 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-5/12 * DNIS:2738300 * CSID:+1 408 773 4029 * DURATION (mm-ss):07-04